

REMARKS:**Status of the Claims**

Claims 1-25 were originally filed. Claims 14 was canceled. Claims 1-13, 15-25 stand rejected in the Office Action of July 19, 2006.

In the present Amendment, claims 8 and 9 are canceled, without prejudice.

Applicants respectfully request reconsideration and withdrawal of rejection in view of the following remarks.

Unpredictability of the Art in Stabilizing Food Colors and The Present Invention

The art in preventing food discoloration is highly unpredictable. Colors used in food and beverages undergo discoloration due to photolysis, oxidation, or heat. Food industry has spent great efforts in stabilizing food colors. There are no bright-line generalizations that can be delineated at the time this invention was made.

For example, with respect to natural colors (such as anthocyanins), certain antioxidants such as flavonoids are shown to act as copigments and stabilizers, whereas other antioxidants such as ascorbic acid in fact accelerate the loss of anthocyanins (*See*, Lenoble *et al.* [U.S. Patent No. 5,908,650], col. 2, line 57 to col. 3, line 9, col. 4, lines 6-12). Tea extracts containing antioxidants such as catechin are said to produce a low stabilizing effect (*See*, Onishi *et al.* [U.S. Patent No. 6,379,729], col. 1, line 66 to col. 2 line 3). Extracts of rosemary leaves containing certain flavonoids fail to improve anthocyanin colors (*See*, Lenoble, col. 3, line 66 to col. 4, line 5). Whether a given antioxidant can stabilize a particular natural color is unpredictable.

With respect to synthetic colors (such as coal-tar), certain pro-oxidant emulsifiers are shown to stabilize colors. Some antioxidant-containing extracts are shown to stabilize synthetic colors (*See*, Tood, Jr [U.S. Patent No. 5,079,016], col. 2, lines 13-23, lines 40-60). Whether a specific extract can stabilize a particular color is unpredictable.

Onishi *et al.* (U.S. Patent No. 6,379,729) show that flavonoids only produce a low stabilizing effect. When used singly, ascorbic acid or sulfurous acid only minimally stabilizes

anthocyanin colors. When used in combination, ascorbic acid, sulfurous acid, and a salt of sorbic acid are shown to be effective (*See*, Onishi, col. 1 line 57 to col. 2, line 10). Whether single use or a combination of specific antioxidant agents can stabilize colors is unpredictable.

There is still controversy as to whether an antioxidant can stabilize food color. For example, as stated in the pending application, food discoloration still prominently occurs in the absence of oxygen (i.e., < 3 ppm oxygen) (*See*, paragraph [0018]), evidencing that food discoloration is not linked to oxidation.

In sum, it is highly unpredictable for one skilled in the art at the time of this invention was made to guess a given compound possessing an antioxidant activity would be effective in stabilizing food colors, let alone if it can stabilize a particular natural or synthetic.

Applicants respectfully submit that our invention is directed to a group of novel color stabilizers that effectively inhibit the discoloration of synthetic colors. The claimed color stabilizers are derived from a botanically source (i.e., tree, plant, weed, or herb) and uniquely contain a C₆-C₃ phenylpropenoic carbonyl structure. The present inventors show that both the unsaturation bond and oxidation at a carbon atom are important for the C₆-C₃ phenylpropenoic carbonyl structure.

1. Claim Rejections Under 35 U.S.C. § 102

Claims 1, 2, 16, 17, 20, and 21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Tood, Jr (U.S. Patent No. 5,079,016). Examiner alleges that Tood, Jr discloses an identical color stabilizer.

To expedite the prosecution and without agreeing with the merit of the rejection, Applicants have amended claim 1 to better recite the claimed food coloring composition. Applicants believe that the amended claim would not be anticipated by Tood, and respectfully request that the 35 U.S.C. § 102 rejection be withdrawn.

2. Claim Rejections Under 35 U.S.C. § 103

Claims 3-13, 15, 18, 19, and 22-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tood, Jr (U.S. Patent No. 5,079,016) in view of Onishi *et al.* (U.S. Patent No. 6,379,729) and Lenoble *et al.* (U.S. Patent No. 5,908,650). Examiner alleges that the use of particular amounts of the synthetic color and the types of color stabilizer is seen as being within the skill of the ordinary worker. (see Office Action, page 4, line 21 to page 5, line 18) Applicants respectfully disagree with the Examiner and request reconsideration for withdrawal of the rejection.

Failure to Establish a *Prima Facie* Obviousness

Applicants respectfully submit that the Examiner fails to establish a *prima facie* obviousness case. To do so, the Examiner must set forth: i) some suggestion or motivation, either from reference or from general knowledge within one skilled in the art, to modify or combine reference teachings; ii) there must be a reasonable expectation of success; and iii) prior art references must teach or suggest all the claimed limitations. *See*, MPEP 2143.

The court has articulated that there must be some suggestion or motivation to combine references, such test is to safe guard hindsight by Examiners. There is no suggestion or motivation that can be found, either expressly or implicitly from the cited references. Applicants submit that Tood discloses that certain surface-active agents (i.e., emulsifiers) must be used in combination with natural antioxidants (i.e., Labiatae extract), which none of the substances can achieve alone (*See*, Tood, col. 2, lines 33-39). Tood fails to disclose or suggest if antioxidants may work in the absence of surface-active agents. Tood never discloses or suggests the recited pheypropenoic carbonyl compounds derived from a botonical source in the pending claims. There is no suggestion or motivation to combine with the teachings of Onishi that discloses a combination of a salt of scorbic acid and sulfurous acid, and Lenoble. On a similar vein, there simply lacks of suggestion or motivation from either Onish or Lenoble to combine with Tood or each other. Although there is no requirement that the prior art contain an express suggestion to combine elements to achieve the claimed invention and that the suggestion may filter through the knowledge of one skilled in the art. Applicants respectfully submit that the art in stabilizing food colors is unpredictable (see above). Examiner is merely hind-sight to hand pick the recited

elements and alleges that they can be modified to combine. This is nothing more than "obvious to experiment" which the Federal Circuit Court has rejected such a standard. As such, Examiner has failed to establish the first criteria.

Applicants further submit that there is no reasonable expectation of success, when these three (3) references were to combine. As stated above, the art in this field is highly unpredictable. There is an inverse correlation between unpredictability and a reasonable expectation of success. That is, the higher the unpredictability, the lesser it is to be expected that something would be successful. In addition, Tood explicitly states that the heart of the his invention relies on the use of specific surface-active agents in stabilizing annatto, tomato, carrot, marigold or synthetic carotenoids (See, Tood, col. 2, lines 13-23 and lines 33-39). Such explicit teaching would lead one skilled in the art to believe that there is no reasonable expectation to succeed when combine with the teachings from Onishi (a mixture of ascorbic and sulfurous acid) and Lenoble (flavonoid to inhibit anthocyanin discoloration) to arrive at our claimed invention (i.e., using a phenylpropenoic carbonyl compound singly (without surface-active agents) to prevent discoloration of a synthetic color). Also, Onishi contains explicit teaching that one skilled in the art must use a combination of ascorbic acid and sulfurous to stabilize food color and that individual use of either agents is ineffective. Such explicit teachings suggest there is no reasonable expectation of success when these references were combined that would lead to our claimed invention. As such, Examiner has failed to establish the second criteria.

Applicants further submit that even if all the cited three (3) references were to combine, it would still not arrive at the recited claim 1. There is simply no fulfillment for the limitations of the compounds with the phenylpropenoic carbonyl structures recited in claim 1. As such, Examiner has failed to establish the third criteria.

In sum, Applicants submit that the Examiner fails to establish a *prima facie* obviousness case.

Onishi and Tood Teach Away From the Claimed Invention

Onishi explicitly states naturally occurring flavonoids such as tea extract and caffeic acid derivatives produce a low stabilizing effect with respect to preventing discoloration of synthetic color (*See*, Onishi, col. 1, line 66 to col. 2, line 3). As such, Onishi teaches away one skilled in the art to modify the use of flavonoids to prevent discoloration for synthetic colors such as those recited in the pending claims of this application.

Tood shows clearly in figure 1 that a combined use of an emulsifier system and rosemary extract is adequate to prevent discoloration for both synthetic and natural colors. (See, Tood, figure 1). As a control, Tood reported that the single use of the rosemary extract is extremely poor in this regard (*See*, Tood, figure 1 and col. 3, lines 20-34). As such, Tood teaches away one skilled in the art to modify Tood invention and use rosemary extract (let alone other extracts) as single components (i.e., without emulsifiers) to stabilize synthetic colors such as those recited in the pending claims of this application.

In general, a reference will teach away if it suggests that one of skill in the art, upon reading the references, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. *In re Gurley*, 27 F.3d 551, 31 USPQ2d 1130 (Fed. Cir. 1994). Here, Onishi discourages the use of flavonoids such as tea extract and caffeic acid derivatives in coal-tar; therefore, one skilled in the art would not modify the Onishi teaching in the use of other synthetic colors as those recited in the pending claims. Similarly, Tood discourages the use of rosemary extract without an emulsifier system.

In sum, our inventors achieve the claimed invention by doing what those skilled in the art (e.g., Onishi and Tood) suggested should not be done, which should be a strong probative for nonobviousness.

For at least these reasons, Applicants respectfully submit that the claimed invention is non-obvious. Applicants respectfully request that the 35 U.S.C. § 103 rejection be withdrawn

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration, withdrawal of rejections, and allowance of all claims now present in the application.

The Commissioner is authorized to charge any required fees, including any extension and/or excess claim fees, any additional fees, or credit any overpayment to Goodwin Procter LLP Deposit Account No. 06-0923.

Respectfully submitted for Applicants,



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